

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kie Y. Ahn et al.

Title: HIGH-QUALITY PRASEODYMIUM GATE DIELECTRICS (As Amended)

Docket No.: 1303.033US2

Filed: January 27, 2004

Examiner: Asok K Sarkar



Serial No.: 10/765,619

Due Date: N/A

Group Art Unit: 2891

**MS Amendment**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

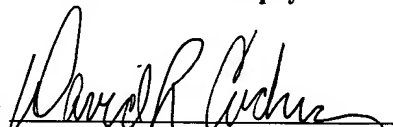
We are transmitting herewith the following attached items (as indicated with an "X"):

- ☒ A return postcard.
- ☒ A Supplemental Information Disclosure Statement (2 pgs.), Form 1449 (3 pgs.), and copies of 10 cited documents.
- ☒ Communication Concerning Related Applications (1 page).

If not provided for in a separate paper filed herewith, Please consider this a **PETITION FOR EXTENSION OF TIME** for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

Customer Number 21186

By:   
Atty: David R. Cochran  
Reg. No. 46,632

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 28 day of July, 2005.

KACIA LEE  
Name

Kacia Lee  
Signature

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
(GENERAL)

S/N 10/765,619

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kie Y. Ahn et al.

Examiner: Asok K. Sarkar

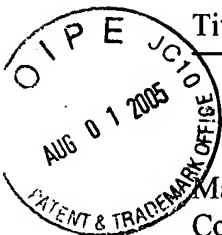
Serial No.: 10/765,619

Group Art Unit: 2891

Filed: January 27, 2004

Docket: 1303.033US2

Title: HIGH-QUALITY PRASEODYMIUM GATE DIELECTRICS (AS AMENDED)



COMMUNICATION CONCERNING RELATED APPLICATION(S)

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Applicants would like to bring to the Examiner's attention the following related application(s) in the above-identified patent application:

<u>Serial/Patent No.</u>	<u>Filing Date/Issue Date</u>	<u>Attorney Docket</u>	<u>Title</u>
11/176738	July 7, 2005	1303.145US1	METAL-SUBSTITUTED TRANSISTOR GATES
11/178914	July 11, 2005	1303.061US3	NANOLAMINATES OF HAFNIUM OXIDE AND ZIRCONIUM OXIDE

Continuations and divisionals may be later filed on the cases listed above, or cited to the Examiner in any previous Communication Concerning Related Applications. Applicants request that the Examiner review all continuations and divisionals of the above-listed or previously-cited patent applications before allowing the claims of the present patent application.

Respectfully submitted,

KIE Y. AHN ET AL.

By Applicants' Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 371-2157

Date 28 July 2005

By

David R. Cochran  
Reg. No. 46,632

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KACIA LEE  
Name

Kacia Lee  
Signature

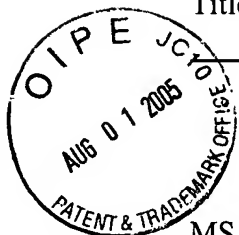
S/N 10/765,619

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Kie Y. Ahn et al.	Examiner:	Asok K Sarkar
Serial No.:	10/765,619	Group Art Unit:	2891
Filed:	January 27, 2004	Docket:	1303.033US2
Title:	HIGH-QUALITY PRASEODYMIUM GATE DIELECTRICS (As Amended)		

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**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Supplemental Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Supplemental Information Disclosure Statement considered.

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Serial No :10/765,619

Filing Date: January 27, 2004

Title: HIGH-QUALITY PRASEODYMIUM GATE DIELECTRICS (As Amended)

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The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

KIE Y. AHN ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 371-2157

Date 28 July 2005

By David R. Cochran  
David R. Cochran  
Reg. No. 46,632

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Name KACIA LEE

Signature Kacia Lee

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(Use as many sheets as necessary)

Complete if Known

Application Number	10/765,619
Filing Date	January 27, 2004
First Named Inventor	Ahn, Kie
Group Art Unit	2891
Examiner Name	Sarkar, Asok

Sheet 1 of 3

Attorney Docket No: 1303.033US2

**US PATENT DOCUMENTS**

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Filing Date If Appropriate
	US-2001/0030352-A1	10/18/2001	Ruf, Alexander , et al.	02/28/2001
	US-2002/0068466-A1	06/06/2002	Lee, S. , et al.	05/31/2001
	US-2002/0111001-A1	08/15/2002	Ahn, Kie Y.	02/09/2001
	US-2002/0155688-A1	10/24/2002	Ahn, Kie Y.	04/20/2001
	US-2002/0155689-A1	10/24/2002	Ahn, Kie Y.	02/11/2002
	US-2002/0192975-A1	12/19/2002	Ahn, Kie Y.	06/17/2002
	US-2002/0192979-A1	12/19/2002	Ahn, Kie Y.	06/17/2002
	US-2003/0003702-A1	01/02/2003	Ahn, Kie Y.	08/26/2002
	US-2003/0017717-A1	01/23/2003	Ahn, Kie Y.	07/18/2001
	US-2003/0043637-A1	03/06/2003	Forbes, Leonard , et al.	08/30/2001
	US-2003/0045060-A1	03/06/2003	Ahn, Kie Y.	08/30/2001
	US-2003/0045078-A1	03/06/2003	Ahn, Kie Y., et al.	08/30/2004
	US-2003/0049942-A1	03/13/2003	Haukka, S. , et al.	08/22/2002
	US-2003/0059535-A1	03/27/2003	Luo, L. , et al.	09/25/2001
	US-2003/0104666-A1	06/05/2003	Bojarczuk, Jr., N. A., et al.	12/20/2002
	US-2003/0119246-A1	06/26/2003	Ahn, Kie Y.	12/20/2001
	US-2003/0119291-A1	06/26/2003	Ahn, Kie Y., et al.	12/20/2001
	US-2003/0132491-A1	07/17/2003	Ahn, Kie Y.	01/17/2002
	US-2003/0207032-A1	11/06/2003	Ahn, Kie Y., et al.	05/02/2002
	US-2003/0207540-A1	11/06/2003	Ahn, Kie Y., et al.	05/02/2002
	US-2003/0227033-A1	12/11/2003	Ahn, Kie Y., et al.	06/05/2002
	US-2004/0007171-A1	01/15/2004	Ritala, Mikko , et al.	07/10/2003
	US-2004/0023461-A1	02/05/2004	Ahn, Kie Y., et al.	07/30/2002
	US-2004/0038554-A1	02/26/2004	Ahn, Kie Y.	08/21/2002
	US-2004/0043541-A1	03/04/2004	Ahn, Kie Y.	08/29/2002
	US-2004/0043569-A1	03/04/2004	Ahn, Kie Y.	08/28/2002
	US-2004/0043635-A1	03/04/2004	Vaartstra, B. A.	08/28/2002
	US-2004/0110348-A1	06/10/2004	Ahn, Kie Y., et al.	12/04/2002
	US-2004/0110391-A1	06/10/2004	Ahn, K. Y., et al.	12/04/2002
	US-2004/0144980-A1	07/29/2004	Ahn, Kie Y., et al.	01/29/2003
	US-2004/0164357-A1	08/26/2004	Ahn, Kie Y., et al.	02/27/2004
	US-2004/0164365-A1	08/26/2004	Ahn, Kie Y., et al.	02/27/2004
	US-2004/0175882-A1	09/09/2004	Ahn, Kie Y., et al.	03/04/2003
	US-2004/0183108-A1	09/23/2004	Ahn, Kie Y.	01/27/2004
	US-2004/0185654-A1	09/23/2004	Ahn, Kie Y.	01/30/2004
	US-2005/0009370-A1	01/13/2005	Ahn, Kie Y.	08/04/2004
	US-2005/0026349-A1	02/03/2005	Forbes, L. , et al.	09/01/2004
	US-2005/0026458-A1	02/03/2005	Basceri, C. , et al.	08/26/2004
	US-2005/0037563-A1	02/17/2005	Ahn, Kie Y.	08/31/2004
	US-2005/0054165-A1	03/10/2005	Ahn, K. Y., et al.	03/31/2003

**EXAMINER****DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. † Applicant's unique citation designation number (optional) ‡ Applicant is to place a check mark here if English language Translation is attached

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use as many sheets as necessary)	Complete if Known	
	Application Number	10/765,619
	Filing Date	January 27, 2004
	First Named Inventor	Ahn, Kie
	Group Art Unit	2891
	Examiner Name	Sarkar, Asok
Sheet 2 of 3	Attorney Docket No: 1303.033US2	

	US-2005/0077519-A1	04/14/2005	Ahn, Kie , et al.	10/10/2003
	US-2005/0124174-A1	06/09/2005	Ahn, K. Y., et al.	01/07/2005
	US-5,751,021	05/12/1998	Teraguchi, Nobuaki	04/22/1996
	US-6,551,929	04/22/2003	Kori, M. , et al.	06/28/2000
	US-6,592,942	07/15/2003	Van Wijck, M. A.	07/07/2000
	US-6,638,859	10/28/2003	Sneh, O. , et al.	09/27/2002
	US-6,652,924	11/25/2003	Sherman, A.	05/24/2001
	US-6,699,747	03/02/2004	Ruff, Alexander , et al.	11/18/2002
	US-6,709,989	03/23/2004	Ramdani, J. , et al.	06/21/2001
	US-6,777,353	08/17/2004	Putkonen, M.	04/08/2003
	US-6,787,413	09/07/2004	Ahn, Kie Y.	06/17/2002
	US-6,790,791	09/14/2004	Ahn, Kie Y., et al.	08/15/2002
	US-6,812,100	11/02/2004	Ahn, K. Y., et al.	03/13/2002
	US-6,831,315	12/14/2004	Raaijmakers, Ivo , et al.	02/22/2001
	US-6,844,260	01/18/2005	Sarigiannis, D. , et al.	01/30/2003
	US-6,884,739	04/26/2005	Ahn, K. Y., et al.	08/15/2002
	US-6,893,984	05/17/2005	Ahn, K. Y., et al.	02/20/2002
	US-6,900,122	05/31/2005	Ahn, K. Y., et al.	12/20/2001
	US-6,921,702	07/26/2005	Ahn, K. Y., et al.	07/30/2002

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		AHN, KIE Y., et al., "ALD OF AMORPHOUS LANTHANIDE DOPED TIOX FILMS", U.S. Application Serial No. 11/092,072; filed March 29, 2005 (Atty. Dkt. No. 1303.135US1)	
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITED HAFNIUM TANTALUM OXIDE DIELECTRICS", U.S. Application Serial No. 11/029,757; filed January 5, 2005 (Atty. Dkt. No. 1303.127US1)	
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITED LANTHANUM ALUMINUM OXIDE DIELECTRIC LAYER", U.S. Application Serial No. 10/930,167; filed August 31, 2004 (Atty. Dkt. No. 1303.122US1)	
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITED LANTHANUM HAFNIUM OXIDE DIELECTRICS", U.S. Application Serial No. 11/010,529; filed December 13, 2004 (Atty. Dkt. No. 1303.126US1)	
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITED TITANIUM ALUMINUM OXIDE FILMS", U.S. Application Serial No. 10/931,533; filed August 31, 2004 (Atty. Dkt. No. 1303.119US1)	
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITION OF Hf3N4/HfO2 FILMS AS GATE DIELECTRICS", U.S. Application Serial No. 11/063,717; filed February 23, 2005 (Atty. Dkt. No. 1303.134US1)	

EXAMINER

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

<b>Application Number</b>	10/765,619
<b>Filing Date</b>	January 27, 2004
<b>First Named Inventor</b>	Ahn, Kie
<b>Group Art Unit</b>	2891
<b>Examiner Name</b>	Sarkar, Asok

Sheet 3 of 3

Attorney Docket No: 1303.033US2

**OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITION OF ZIRCONIUM-DOPED TANTALUM OXIDE FILMS", U.S. Application Serial No. 10/909,959; filed August 2, 2004 (Atty. Dkt. No. 1303.114US1)	
		AHN, KIE Y., et al., "ATOMIC LAYER DEPOSITION OF Zr <sub>3</sub> N <sub>4</sub> /ZrO <sub>2</sub> FILMS AS GATE DIELECTRICS", U.S. Application Serial No. 11/058,563; filed February 15, 2005 (Atty. Dkt. No. 1303.133US1)	
		AHN, KIE Y., et al., "HYBRID ALD-CVD OF PrXOY/ZrO <sub>2</sub> FILMS AS GATE DIELECTRICS", U.S. Application Serial No. 11/010,766; filed December 13, 2004 (Atty. Dkt. No. 1303.129US1)	
		AHN, KIE Y., et al., "RUTHENIUM GATE FOR A LANTHANIDE OXIDE DIELECTRIC LAYER", U.S. Application Serial No. 10/926,812; filed August 26, 2004 (Atty. Dkt. No. 1303.121US1)	

**EXAMINER****DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

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